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ROBERT W. FRENSLEY
PETROLEUM GEOLOGIST
1500 WICHITA PLAZA
WICHITA, KANSAS

October 26, 1967

Edwin G. Bradley
Berghaus No. 1 C E/2 NE
Section 10- T33S- R29W,
Meade County, Kansas

Elevation: 2586 feet, Kelly bushing (depth datum)
2584 feet, Derrick floor
2577 feet, Ground

Commenced: October 5, 1967
Completed: October 16, 1967, as a dry hole.
Contractor: R. W. Rine Drilling Co.

8 5/8 inch surface casing set at 1384 feet with 760 sacks of cement.

2586
3152
5738

G E O L O G I C A L R E P O R T

Following are the important geological markers, zones of porosity with shows of oil core description and other pertinent data as determined by the physical appearance of the drill cuttings and core, the results of the one drill stem test and the calculations of the Schlumberger Dual Induction - Laterolog, Gamma Ray - Sonic Logs. Mr. Lee Poulson was to be the well site geologist. After the first few hours of well supervision by Mr. Poulson, it became evident that he had a conflicting schedule on another well. The writer was present and agreed to finish the well. This report represents the work of both geologists.

Electric log formation tops and corresponding subsea data follow.

Formation	Depth	Datum
Top Heebner Shale	4364	-1778
Top Lansing	4517	-1931
Top Marmaton	5176	-2590
Top Morrow Sand	5681	-3095
Base Morrow Sand	5708	-3122
Total Depth	5738	-3152

No oil shows of consequence were noted above the Top of the Morrow. The entire Morrow Sand section was cored by Drilling and

Service, Inc., using a 6 1/8 inch diamond bit. The core analysis work was done by Core Laboratories, Inc.

The physical appearance of the core as described by the writer is as follows:

5680 - 5681	Light green and grey, very fine grained, calcareous and shaley sandstone.
5681 - 5683	Tan, fine grained, subangular oil stained and saturated sandstone with many shaley partings, good oil odor.
5683 - 5686	As above, very shaley and laminated.
5686 - 5689	Light grey and light green, fine grained, subangular, calcareous and shaley sandstone with very poor staining, faint odor.
5689 - 5691	Tan, fine grained, subangular, oil stained and saturated sandstone with strong oil odor.
5691 - 5696	Tan - brown sand as above, clean and porous, oil stained with strong odor.
5696 - 5700	As above with clear, tight streaks, fair odor.
5700 - 5702	Light green, fine grained, shaley, tight, hard sandstone. Some light stain and faint odor.
5702 - 5703	Tan - brown, medium crystalline, crinoidal limestone.
5703 - 5705	Light grey and green, very fine grained, shaley hard sandstone. No oil shows. No odor.
5705 - 5708	Grey - green, green and dark grey, calcareous, platy shale.

Core Laboratories analysis of the previously described core is as follows:

Depth (feet)	Permeability (Millidarcys)	Porosity %	Residual Saturation (% Pore Space) Oil	Total Water
5680-81	4.1	21.9	4.1	66.2
81-82	2.7	19.2	9.3	43.6
82-83	3.3	19.1	8.4	47.2
83-84	5.6	18.5	9.7	50.7
84-85	4.5	21.4	11.2	52.4
85-86	3.2	19.8	6.0	61.2
86-87	0.6	16.3	3.7	73.6
87-88	0.2	13.2	0.0	75.6
88-89	49	19.5	14.3	44.0
89-90	65	19.8	12.1	52.5
90-91	33	19.0	9.0	47.4
91-92	5.1	17.5	14.3	45.2

Depth (feet)	Permeability (Millidarcys)	Porosity %	Residual Saturation (% Pore Space) Oil	Total Water
5692-93	130	21.4	14.5	38.7
93-94	45	16.5	13.3	40.6
94-95	242	20.1	16.4	27.9
95-96	53	16.7	15.0	38.2
96-97	17	14.7	11.6	46.8
97-98	6.2	15.5	9.7	54.9
98-99	9.9	18.6	11.3	45.6
5699-00	7.7	18.5	10.3	58.4
5700-01	0.6	15.4	4.5	76.0
01-02	0.1	6.8	0.0	79.4
02-03	0.1	13.1	11.4	43.5
03-04	80	12.3	4.9	57.0
5704-05	0.1	8.0	0.0	79.9

However, the Schlumberger Log Analysis indicated the main portion of the Morrow Sand to be water bearing. The Log Analysis was as follows:

Depth	Porosity	Water Saturation	Remarks
5685-89	20%	58%	Shaly
5689-94	20%	70%	Shaly
5694-5700	14%	75%	
5700-04	15%	80%	

After the optimistic results of the core analysis was received at the well site the core hole was reamed to full hole size and the following drill stem test was run:

Drill Stem Test No. 1 (Western Testers) 5685 - 5699:

Open one hour. Gas to surface in 28 minutes. Volume too small to measure.

Recovered: 190 feet heavy oil and gas cut mud
60 feet watery mud
120 feet muddy water.

Initial shut in bottom hole pressure in 30 min.	1337 psi
Initial flow pressure	47 psi
Final flow pressure	131 psi
Final shut in bottom hole pressure in 30 min.	1337 psi

The most promising portion of the Morrow Sand body was included in this drill stem test interval. The recovery of only 190 feet of heavily oil cut mud along with 180 feet of watery mud and muddy water

was very discouraging. The bottom hole pressure of 1337 pounds per square inch was about as expected.

Calculations indicated a damage factor of 9. Had pipe been run and the Morrow Sand perforated it would have been necessary to fracture the potential oil pay formation. With the close proximity of oil and water the well would probably produce mostly water.

The datum of the Top of the Morrow Sand of the subject test was 4 feet higher than the old dry hole (Ferguson Oil Co.'s Government No. 1), located 880 feet West, and 22 feet lower than the PMI Berghaus No. 1, a flowing oil well located 1320 feet East. In light of the foregoing facts, it was the writer's recommendation that the hole be plugged and abandoned as dry.

Respectfully submitted,

Robt W Frensley

Robert W. Frensley,
Petroleum Geologist.

RWF/mlb
Encs.

4300-4310	2,4,2,2,2	-	2,2,2,2,2	
20	2,2,2,2,2	-	2,2,2,2,2	
30	2,2,2,2,2	-	2,2,2,2,2	
40	2,2,2,2,2	-	2,2,2,2,2	
50	2,2,1,1,1	-	1,1,1,1,1	
60	5,4,10,5,1	-	2,3,3,2,2	
70	4,3,4,3,2	-	2,2,2,2,2	
80	1,1,1,2,4	-	4,2,3,3,4	
90	3,3,2,2,3	-	2,1,1,1,2	
4400	2,4,2,2,2	-	4,3,2,2,2	
4400-4410	2,1,1,1,2	-	2,1,1,½,½	
20	½,½,1,1,1	-	½,1,1,1,1	
30	2,1,2,2,3	-	5,5,2,1,½	Trip @ 4429
40	½,½,1,2,1	-	1,1,1,2,2	
50	2,1,2,2,1	-	1½,2½,2,1,2	
60	2,1,1,1,1	-	1,1,1,1,1	
70	1,1,1,1,2	-	2,2,2,2,2	
80	2,2,2,2,2	-	1,2,1½,1½,1	
90	2,1,2,2,2	-	3,1,2,2½,1½	
4500	2,2,2,2,1	-	2,2,1,2,2	
4500-4510	1,2,2,2,1	-	2,2,1,2,2	
20	1,2,2,1,2	-	1,1,2,2,1	
30	2,2,2,2,2	-	1,2,2,2,2	
40	1,2,2,2,3	-	2,3,2,2,2	
50	2,2,1,1/3,1/3	-	1/3,1/2,1/2,2,2	
60	1,2,2,2,2	-	2,1,1,1,2	
70	2,3,3,2,3	-	4,2,3,3,3	
80	3,2,2,2,2	-	2,1,1,2,1	
90	1,3,3,2,1	-	2,1,1,1,1	
4600	1,2,2,1,1	-	1,1,1,21,	
4600-4610	1,2,3,2,2	-	1,1,1,1,1	
20	1,1,1,1,1	-	1,1,½,½,1	
30	1,1,2,1,2	-	3,2,2,1,3	
40	3,2,3,2,4	-	4,3,2,1,2	
50	4,4,2,4,3	-	1,1,1,1,1	
60	3,2,3,3,3	-	3,3,3,2,1	
70	2,1,2,1,1	-	2,1,2,1,2	
80	2,3,2,2,1	-	1,1,1,½,½	
90	1,1,2,2,3	-	1,1,1,1,1	
4700	1,1,2,1,1	-	2,2,2,1,1	

4700-4710	1,1,1,½,½	-	1,1,1,½,½	
20	1,1,1,1,1	-	3,5,5,4,5	
30	4,1,1,1,½	-	½,½,½,1,1	
40	½,½,1,1,1	-	1,2,2,2,1	Trip @ 4740
50	2,2,1,1,1	-	2,2,1,2,2	
60	1,2,5,4,4	-	5,5,4,5,1	
70	2,2,6,3,3	-	3,2,2,3,3	
80	2,2,3,2,2	-	3,2,1,3,3	
90	2,2,3,2,2	-	2,4,2,1,1	
4800	1,1,1,2,2	-	2,½,½,½,½	
4800-4810	1,½,½,2,2	-	2,2,3,2,2	
20	2,2,2,2,2	-	2,2,2,2,1	
30	1,1,2,1,2	-	1,2,1,2,3	
40	1,1,1,2,1	-	2,1,3,3,2	
50	2,2,2,2,2	-	4,5,4,4,4	
60	5,4,2,1,1	-	1,2,4,5,3	
70	2,1,2,2,1	-	1,2,2,2,4	
80	6,3,3,4,3	-	4,3,5,2,4	
90	1,1,2,1,2	-	3,7,6,7,7	
4900	10,8,6,4,3	-	1,2,1,3,2	
4900-4910	2,2,2,3,2	-	4,3,3,2,1	
20	3,2,2,2,3	-	2,1,2,1,2	
30	3,2,1,1,1	-	2,3,2,2,2	
40	3,2,3,3,2	-	2,2,3,3,2	
50	2,2,2,2,4	-	3,3,2,2,2	
60	2,4,4,3,4	-	6,5,6,2,2	Trip @ 4959
70	3,3,3,4,2	-	3,3,4,5,5	
80	3,3,3,2,3	-	3,3,3,2,2	
90	2,2,3,3,2	-	2,2,3,3,3	
5000	3,3,2,2,2	-	1,2,1,2,2	
5000-5010	2,3,2,2,2	-	2,3,3,1,1	
20	1,1,1,3,3	-	3,3,3,3,3	
30	3,3,3,3,3	-	3,3,3,4,4	
40	4,3,5,2,4	-	4,3,4,3,4	
50	4,4,3,3,3	-	2,3,2,2,2	
60	2,2,2,2,2	-	2,2,1,2,3	
70	3,4,3,4,3	-	3,3,4,4,5	
80	4,4,3,3,4	-	3,3,2,3,3	
90	4,4,3,3,4	-	4,4,4,4,4	
5100	1,1,1,1,½	-	½,½,½,½,½	

5100-5110	½,½,½,½,½	-	¼,¼,¼,¼,¼	
20	½,½,½,½,½	-	¼,¼,¼,¼,¼	
30	½,½,½,½,½	-	1,1,1,1,1	
40	2,4,3,3,3	-	3,4,4,4,4	
50	3,4,5,4,4	-	4,4,5,5,5	
60	5,5,8,8,8	-	8,6,6,7,5	
70	2,2,2,3,4	-	3,3,4,3,3	Trip @ 5161
80	3,3,4,3,2	-	2,2,2,2,2	
90	1,2,3,2,2	-	2,2,2,3,2	
5200	3,2,3,2,2	-	3,3,2,2,4	
5200-5210	3,3,3,3,4	-	3½,3½,2½,2½,2	
20	3,3,3,3,3	-	3,4,4,4,3	
30	3,4,4½,4½,3	-	6,4,5,3,4	
40	5,3,5,4,4	-	4,3,3,2,2	
50	2,1,½,½,1	-	½,½,1,½,½	
60	½,½,½,½,½	-	½,½,½,1,1	
70	3,3,3,3,4	-	4,4,4,4,5	
80	5,5,5,3,3	-	5,4,4,4,6	
90	5,5,5,5,6	-	4,5,4,3,3	
5300	3,3,3,3,4	-	4,4,4,4,4	
5300-5310	3,4,3,1,3	-	3,3,3,7,5	
20	3,5,5,6,4	-	5,2,5,3,3	
30	2,3,4,4,4	-	3,3,3,4,4	
40	4,4,5,5,4	-	5,6,7,5,6	
50	10,4,3,3,4	-	3,3,4,5,3	Trip @ 5342
60	4,3,4,4,3	-	5,4,6,3,2	
70	2,3,3,4,6	-	6,6,4,5,5	
80	2,4,3,4,3	-	2,4,3,3,3	
90	3,4,2,2,3	-	3,2,3,3,2	
5400	2,3,3,3,3	-	4,4,4,5,4	
5400-5410	6,7,5,5,4	-	6,2,2,2,2	
20	3,5,4,1,6	-	1,3,4,4,2	
30	6,4,5,4,5	-	3,4,4,3,3	
40	3,4,4,3,3	-	6,3,3,3,3	
50	2,2,3,3,3	-	4,3,3,4,4	
60	4,3,4,6,6	-	4,4,3,5,4	
70	3,4,3,4,5	-	3,3,2,3,3	
80	2,2,2,2,3	-	3,3,6,6,3	Trip @ 5479
90	4,4,5,6,2	-	4,4,4,4,5	
5500	4,3,2,2,3	-	4,3,3,3,4	

5500-5510	5,4,5,6,5	-	3,4,3,3,3	
20	2,3,3,4,5	-	4,4,5,4,4	
30	3,4,4,4,4	-	5,4,4,4,5	
40	4,5,6,6,6	-	3,3,4,2,2	
50	3,4,4,6,4	-	5,6,8,5,3	
60	6,7,7,5,6	-	7,6,5,5,8	
70	8,8,9,7,8	-	7,9,7,6,6	
80	6,7,6,4,4	-	2,6,13,11,10	
90	13,12,11,10,10	-	6,3,3,4,4	Trip @ 5586
5600	4,4,3,3,2	-	1,2,3,3,3	
5600-5610	2,4,2,3,2	-	3,3,2,4,3	
20	4,3,3,3,2	-	2,1,1,1,1	
30	2,3,3,2,2	-	3,1½,2,2½,3	
40	3,3,3,2,2	-	2½,3½,4,2½,3½	
50	3,3,4,2,3	-	3,2,3,3,3	
60	2½,3½,3,4,2	-	4,3,2,3,3	
70	3,3½,2½,3,3	-	2,2,2,2,3	
80	3,4,2,3,2	-	2,1,1,1,2	

CORING TIME: (5680 thru 5708')

5680-5690	6,3,2,1,3	-	3,3,3,2,7	
5700	9,8,13,8,15	-	13,4,3,4,3	
5700-5710	4,5,7,4,6	-	17,20,20,2,4	
20	5,6,5,6,7	-	5,6,6,5,3	
5720-5728	5,7,2,3,7	-	4,6,8	Circ. @ 5728
5738	T.D.			